

increased projected annual cost of \$998 per overweight person with CMR factors. **CONCLUSION:** CMR factors are more prevalent and lead to significantly greater costs in an overweight population. Weight loss interventions of overweight patients may potentially decrease CMR factors and their associated costs.

## PSY13

#### THE HEALTH CARE COST EFFECTS OF DIABETES AMONG OBESE AND MORBIDLY OBESE ADULTS IN THE UNITED STATES

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**OBJECTIVE:** To determine the extent to which diabetes among obese and morbidly obese subjects affects health care costs, and to determine whether obesity and morbid obesity remain predictors of health care costs after controlling for diabetes. **METHODS:** Data from the Medical Expenditure Panel Survey (MEPS) for 2000–2004 are examined. Multivariate models are estimated to predict the probability of incurring any health care costs and health care costs incurred. These models include obesity and morbid obesity, diabetes, age, education, occupation category and race. Models are estimated separately by gender. Estimates of out-of-pocket, insurer, and total costs are obtained. Both per capita and national aggregate cost estimates are obtained. **RESULTS:** Both out-of-pocket costs rise dramatically among obese and morbidly obese subjects who are diabetic. Relative to healthy weight individuals, out-of-pocket costs for obese diabetics increase by \$1002 per annum for females and \$1051 for males. The cost increases are even greater among morbidly obese diabetics—\$1551 for females and \$1555 for males. Insurer costs increase for obese diabetics are \$3897 for females and \$3651 for males. Among morbidly obese diabetics, these cost increases total \$7302 for females and \$8008 for males. The aggregate out-of-pocket costs of obesity total \$9.7 billion, of which \$8.2 billion, or 85%, are incurred by obese or morbidly obese diabetics. Aggregate costs to insurers total \$56.3 billion, of which \$32.2 billion, or 57%, are due to obese or morbidly obese diabetics. **CONCLUSION:** Obese and morbidly obese diabetics account for a disproportionate share of health care costs among the obese population as a whole. Efforts to prevent diabetes in this population and to reduce diabetes among obese and morbidly obese individuals will lead to very substantial cost savings to insurers and consumers.

## PSY14

#### ECONOMIC EVALUATION OF LENOLIDOMIDE USE FOR MULTIPLE MYELOMA IN SCOTLAND IN PATIENTS WHO HAVE RECEIVED ONE PRIOR THERAPY

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**OBJECTIVE:** Lenalidomide in combination with high-dose dexamethasone (Len + Dex), yields improved time to progression (TTP) and survival compared to high-dose dexamethasone alone (Dex). This study aimed to estimate long-term health and cost consequences of Len + Dex versus Dex in Scottish patients with multiple myeloma (MM) who have received one prior therapy. **METHODS:** A discrete event simulation of a patient's course following initiation of Len + Dex or Dex was developed. The model uses patient's response (complete, partial, stable disease or progressive disease) and estimates corresponding TTP and subsequent survival based on Weibull functions derived from pooled

data from two Phase III randomized clinical trials and long-term outcomes of UK Medical Research Council MM trials. Adverse events and disease management costs are included. Utility by response level was obtained from literature. Patients remain on treatment until relapse. Disease management costs reflect clinical practice in Scotland. Costs and health outcomes are discounted at 3.5% per annum. In the base case, events and costs are considered over two years reflecting trial follow-up (survival is modeled until death). 1000 patients are simulated per analysis. Univariate sensitivity analyses are performed around key model parameters. **RESULTS:** The modeled median TTP is conservative with Len + Dex at 13.5 months compared with 4.7 months with Dex. This translates to QALY gains: 3.19 vs 1.39. Totals costs with Len + Dex were £56,155 compared to £3819 with Dex, leading to an incremental cost-effectiveness ratio of £28,980 per QALY. Sensitivity analyses showed that outcomes remain consistent through broad changes in key parameters. **CONCLUSION:** Lenalidomide delivers significant improvements in quality-adjusted survival in a life-limiting orphan disease and yields an estimated incremental cost per QALY which falls within a cost-effective range.

## PSY15

#### COST-EFFECTIVENESS OF ERYTHROPOIESIS STIMULATING AGENT THERAPY BY HEMOGLOBIN TARGETS IN CHRONIC KIDNEY DISEASE

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**OBJECTIVE:** To evaluate the cost-effectiveness of Erythropoiesis Stimulating Agent (ESA) therapy by hemoglobin (Hb) targets (Hb < 10, 10–11, 11–12, 12–13, and >13 g/dL) in Chronic Kidney Disease (CKD) considering the complication of cardiovascular diseases (CVD). **METHODS:** Two lifetime decision analyses models for hemodialysis and pre-dialysis patients using backward induction method were developed using parameter values from published literatures and 2006 United States Renal Data System. Direct costs (anemia medication (erythropoietin or darbepoetin), hemodialysis and CVD treatment) and indirect costs (patient and caregiver time cost) were measured in 2006 US Dollars. Effectiveness was measured as quality-adjusted life years (QALYs). All costs and QALYs were discounted at 3% and cost-effectiveness was measured as incremental cost per QALYs gained (ICER). Uncertainty was evaluated using one way sensitivity analyses and threshold analyses. **RESULTS:** For hemodialysis patients who initiated treatment at age 45, higher hemoglobin targets yielded favorable ICERs (\$20,050, \$90,387, \$67,199 and \$11,216 for Hb 10–11 compared to Hb < 10, Hb 11–12 compared to Hb 10–11, Hb 12–13 compared to Hb 11–12, and Hb > 13 compared to Hb 12–13, respectively). For pre-dialysis patients, Hb 11–12 and Hb 12–13 were dominant strategies compared to Hb 10–11 and Hb 11–12, and ICER for Hb 12–13 compared to Hb > 13 was \$2404. The results were more favorable for older patients and darbepoetin treatment. Results were robust to sensitivity analyses in pre-dialysis model, but sensitive to the CVD probabilities and erythropoietin costs in hemodialysis model. **CONCLUSION:** Anemia treatment with ESA therapy was cost effective even in Hb > 13 for hemodialysis patients using a threshold of ICER \$120,000 compared to Hb 12–13. For pre-dialysis patients, treatment to Hb 12–13 was the most cost effective. These results showed that higher treatment targets compared to current national guidelines (maintaining Hb 11–12, not exceeding 13) are associated with favorable cost-effectiveness ratios. This is consistent with Medicare's revised payment policies for ESA treatment.